WHAT IS CLAIMED IS:

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1. A shadow mask for use in a cathode ray tube, comprising:

a mask body having a mask effective section where a number of electron beam passage apertures are formed and a skirt portion provided at a peripheral edge of the mask effective section; and

a mask frame arranged outside the skirt portion and resistance-welded to the skirt portion at a plurality of portions, wherein

the skirt portion includes an outer surface in contact with the mask frame, an inner surface positioned opposite to the outer surface, and a plurality of concave and/or convex portions formed on that region of the inner surface of the skirt portion which a contact surface of an electrode for resistance-welding contacts, in each of the welding portions, each of the plurality of concave and/or convex portions having a smaller area than an area of the contact surface of the electrode.

2. A shadow mask according to claim 1, wherein the skirt portion includes a plurality of concave and/or convex portions formed in the outer surface, at each of the welding portions, each of the plurality of concave and/or convex portions having a smaller area than the area of the contact surface of the electrode.

3. A shadow mask according to claim 1, wherein

the concave and/or convex portions are formed to have a diameter and a pitch such that a contact area between the contact surface of the electrode and the inner surface of the skirt portion is 50 to 10% of the contact surface of the electrode.

4. A shadow mask according to claim 1, wherein the mask body has an oxide film which covers an entire surface of the mask body, and the mask frame has an oxide film which covers an entire surface of the mask frame.

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5. A cathode ray tube comprising:

a panel provided with a phosphor screen on an inner surface of the panel;

a shadow mask arranged facing the phosphor screen; and

an electron gun for emitting an electron beam onto the phosphor screen through the shadow mask, wherein

the shadow mask includes a mask body having a mask effective section where a number of electron beam passage apertures are formed and a skirt portion provided at a peripheral edge of the mask effective section, and a mask frame arranged outside the skirt portion and resistance-welded to the skirt portion at a plurality of portions, and

the skirt portion includes an outer surface in contact with the mask frame, an inner surface positioned opposite to the outer surface, and

a plurality of concave and/or convex portions formed on that region of the inner surface of the skirt portion which a contact surface of an electrode for resistance-welding contacts, in each of the welding portions, each of the plurality of concave and/or convex portions having a smaller area than an area of the contact surface of the electrode.

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6. A cathode ray tube according to claim 5, wherein the skirt portion includes a plurality of concave and/or convex portions formed in the outer surface, at each of the welding portions, each of the plurality of concave and/or convex portions having a smaller area than the area of the contact surface of the electrode.

7. A cathode ray tube according to claim 5, wherein the concave and/or convex portions are formed to have a diameter and a pitch such that a contact area between the contact surface of the electrode and the inner surface of the skirt portion is 50 to 10% of the contact surface of the electrode.

8. A cathode ray tube according to claim 5, wherein the mask body has an oxide film which covers an entire surface of the mask body, and the mask frame has an oxide film which covers an entire surface of the mask frame.

9. A method for manufacturing a shadow mask, comprising the steps of:

preparing a mask body having a mask effective section where a number of electron beam passage apertures are formed and a skirt portion provided at a peripheral edge of the mask effective section and having a plurality of concave and/or convex portions formed on an inner surface of the skirt portion;

arranging a mask frame layered outside the skirt portion;

clamping the skirt portion and the mask frame with a predetermined pressure, at a predetermined welding position, between a first electrode which contacts the inner surface of the skirt portion where the plurality of concave and/or convex portions are formed and a second electrode which contacts the outer surface of the mask frame; and

conducting electricity between the first and second electrodes thereby to resistance-weld the skirt portion and the mask frame to each other.

10. A method according to claim 9, wherein the plurality of concave and/or convex portions and the electron beam passage apertures are formed by the same etching step.

11. A method according to claim 9, wherein the concave and/or convex portions each have a smaller area than an area of a contact surface of the first electrode.

12. A method according to claim 9, wherein the

concave and/or convex portions are formed to have a diameter and a pitch such that a contact area between a contact surface of the first electrode and the inner surface of the skirt portion is 50 to 10% of an area of the contact surface of the first electrode.

13. A method according to claim 10, wherein an outer surface of the mask body is covered with an oxide film after the plurality of concave and/or convex portions and the electron beam passage apertures are formed in the mask body by the etching step.

14. A method for manufacturing a shadow mask, comprising the steps of:

preparing a mask body having a mask effective section where a number of electron beam passage apertures are formed and a skirt portion provided at a peripheral edge of the mask effective section;

arranging a mask frame layered outside the skirt portion;

clamping the skirt portion and mask frame with a predetermined pressure, at a predetermined welding position, between a first electrode which contacts an inner surface of the skirt portion and a second electrode which contacts an outer surface of the mask frame;

surrounding a contact portion between the first electrode and the inner surface of the skirt portion, and a periphery of the first electrode, with a cover

for catching splashes; and

conducting electricity between the first and second electrodes thereby to resistance-weld the skirt portion and the mask frame to each other.

15. A method according to claim 14, wherein a cooling medium is supplied to the portion surrounded by the cover such that the skirt portion and the mask frame are resistance-welded to each other while cooling the first electrode.

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16. An apparatus for manufacturing a shadow mask, comprising:

a support portion for supporting a mask body having a mask effective section where a number of electron beam passage apertures are formed and a skirt portion provided at a peripheral edge of the mask effective section, and a mask frame arranged to be layered outside the skirt portion; and

a welding head for resistance-welding the skirt portion and the mask frame to each other at a predetermined welding position, the welding head including a first electrode which contacts an inner surface of the skirt portion, a second electrode which contacts an outer surface of the mask frame, a pressing portion for clamping the skirt portion and the mask frame between the first and second electrodes, and a cover, for catching splashes, surrounding a contact portion between the fist electrode and the inner

surface of the skirt portion and a periphery of the first electrode.

17. An apparatus according to claim 16, further comprising a supply device for supplying a cooling medium to a portion surrounded by the cover, to cool the first electrode.